

Contents

Preface	iii
Executive Summary	v
1. Introduction	1
2. Definitions of Terms and Concepts	3
2.1 The Different Steps in the Radiotherapy Procedure	3
2.2 Aim of Therapy	3
2.3 Volumes	3
2.3.1 Gross Tumor Volume (GTV)	6
2.3.2 Clinical Target Volume (CTV)	6
2.3.3 Planning Target Volume (PTV)	7
2.3.4 Treated Volume	16
2.3.5 Irradiated Volume	16
2.3.6 Organs at Risk	18
2.4 Absorbed Dose Distribution	18
2.4.1 Dose Variation in the Planning Target Volume	18
2.4.2 Representation of a Spatial Dose Distribution	20
2.4.3 Maximum Dose (D_{\max})	20
2.4.4 Minimum Dose (D_{\min})	26
2.4.5 Average Dose (D_{average})	26
2.4.6 Median Dose (D_{median})	26
2.4.7 Modal Dose (D_{modal})	26
2.4.8 Hot Spots	26
3. Recommendations for Reporting	27
3.1 Introduction	27
3.2 General Recommendations for Reporting Volumes	27
3.2.1 Gross Tumor Volume	27
3.2.2 Clinical Target Volume	27
3.2.3 Planning Target Volume	27
3.2.4 Treated Volume	27
3.2.5 Irradiated Volume	28
3.3 General Recommendations for Reporting Doses	29
3.3.1 The ICRU Reference Point	29
3.3.2 The ICRU Reference Dose	33
3.3.3 The Dose Variation Throughout the Planning Target Volume	33
3.3.4 The Three Levels of Dose Evaluation for Reporting	33
3.3.4.1 Level 1: Basic Techniques	33
3.3.4.2 Level 2: Advanced Techniques	33
3.3.4.3 Level 3: Developmental Techniques	33
3.4 A Single Planning Target Volume	34
3.4.1 Simple Beam Arrangements	34
3.4.2 Complex Beam Arrangements	34
3.5 Complex Treatments With More Than One Planning Target Volume	36
3.5.1 Introduction	36
3.5.2 Adjacent Planning Target Volumes	36
3.5.3 Overlapping Planning Target Volumes	36

3.5.3.1	At level 1	36
3.5.3.2	At levels 2 and 3	38
3.6	Organs at Risk	38
3.7	Hot Spots	38
Appendix I. Minimum Requirements for Documentation and Recommendations for Description of Technique for Reporting		
I.1	Minimum Requirements for Documentation	39
I.2	Description of Treatment Techniques, Including Methods for Planning, Dose Calculation and Control, for the Purpose of Reporting	44
I.2.1	Treatment Planning	44
I.2.2	Technique	44
I.2.3	Absorbed Dose Calculation	47
I.2.4	Quality Control	47
I.2.5	Special Comments	47
Appendix II. Examples of the Use of the Recommendations in Some Different Beam Arrangements		
Appendix III. Relative Merits of Central Dose, Minimum Dose, and Average Dose for Reporting		
References	66
ICRU Reports	67
Index	71

